

AMENDMENTS TO THE CLAIMS

The following listing of claims replaces all previous claim listings and versions of claims in this application.

1-27. (Cancelled)

28. (Previously Presented) A process for treating microelectronic or optoelectronic substrates that have a working layer with a free surface thereof, which process comprises annealing the substrate under a reductive atmosphere that includes hydrogen for less than 3 minutes at a temperature between 1100 and 1300°C to assist in smoothing of the free surface, followed by chemical mechanical polishing of the free surface to provide it with a final rms roughness of between 0.8 and 1.5 angstroms measured during scanning of a 1 x 1 μm area so that it is ready for further processing.

29. (Previously Presented) The process of claim 28, wherein the reductive atmosphere comprises hydrogen or a mixture of hydrogen and argon.

30. (Previously Presented) The process of claim 28, wherein the annealing is conducted for less than 60 seconds at a temperature between 1200 and 1230°C.

31. (Previously Presented) The process of claim 28, which further comprises oxidizing the working layer prior to polishing to provide at least a portion of the free surface as an oxide.

32. (Previously Presented) The process of claim 31, which further comprises removing a portion of the oxide prior to annealing.

33. (Previously Presented) The process of claim 28, which further comprises conducting one or more heat treatments of the substrates as the further processing.

34. (Previously Presented) The process of claim 28, which further comprises oxidizing the working layer after polishing to provide at least a portion of the free surface as an oxide.

35. (Previously Presented) The process of claim 34, wherein the oxidizing is carried out to form a protective oxide on the working layer and which further comprises subjecting the substrates to at least one further heat treatment as the further processing while the working layer is protected by the oxide.

36. (Previously Presented) The process of claim 28, which further comprises annealing the substrates after the polishing step in order to improve qualities of the working layer.

37. (Previously Presented) The process of claim 28, wherein the working layer is provided by implanting atoms into a wafer to form a weakened atom implantation zone that defines the working layer, bonding the wafer to the substrate and then detaching the working layer from the wafer along the weakened zone to transfer it to the substrate.

38. (Previously Presented) The process of claim 37, wherein the working layer is made of a semiconductor material.

39. (Previously Presented) The process of claim 37, wherein the working layer is made of silicon.

40. (Previously Presented) The process of claim 28, wherein chemical mechanical polishing removes about 200Å to about 400Å of the substrate.

41. (Currently Amended) A process for treating microelectronic or optoelectronic substrates that have a working layer with a free surface thereof, which process comprises:
oxidizing the working layer to provide at least a portion of the free surface as an oxide;
removing a portion of said oxide; and
after the portion of said oxide is removed, annealing the substrate under a reductive atmosphere to assist in smoothing of the free surface and then chemical mechanical polishing the free surface to prepare it for further processing, wherein chemical mechanical polishing removes about 200Å to about 400Å of the substrate.

42. (Previously Presented) The process of claim 41, wherein the reductive atmosphere comprises hydrogen or a mixture of hydrogen and argon.

43. (Previously Presented) The process of claim 41, wherein the annealing is conducted for less than 60 seconds at a temperature between 1200 and 1230°C.

44-45. (Cancelled)

46. (Previously Presented) The process of claim 41, which further comprises conducting one or more heat treatments of the substrates as the further processing.

47. (Previously Presented) The process of claim 41, which further comprises oxidizing the working layer after polishing to provide at least a portion of the free surface as an oxide.

48. (Previously Presented) A process for treating microelectronic or optoelectronic substrates that have a working layer with a free surface thereof, which process comprises annealing the substrate under a reductive atmosphere to assist in smoothing of the free surface, chemical mechanical polishing the free surface to prepare it for further processing, and oxidizing the working layer after polishing to provide at least a portion of the free surface as an oxide, wherein the oxidizing is carried out to form a protective oxide on the working layer and which further comprises subjecting the substrates to at least one further heat treatment as the further processing while the working layer is protected by the oxide.

49. (Previously Presented) The process of claim 41, which further comprises annealing the substrates after the polishing step in order to improve qualities of the working layer.

50. (Previously Presented) The process of claim 41, wherein the working layer is provided by implanting atoms into a wafer to form a weakened atom implantation zone that defines the working layer, bonding the wafer to the substrate and then detaching the working layer from the wafer along the weakened zone to transfer it to the substrate.

51. (Previously Presented) The process of claim 50, wherein the working layer is made of a semiconductor material.

52. (Previously Presented) The process of claim 50, wherein the working layer is made of silicon.